

National Library of Medicine Resources for Citizen Science

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National Network of Libraries of Medicine, Middle Atlantic Region

**ACRL HSIG
November 12, 2018**

Save the date:

- January 28, 2019 at 2 pm ET ClinicalTrials.gov
- March 18, 2019 at 2 pm ET PubMed and Beyond
- April 22, 2019 at 2 pm ET PubMed teaching panel

Our objectives:

- Describe different aspects of citizen science
- Share specific examples of health-related citizen science projects
- Discuss some of the challenges associated with citizen science
- Explain ways librarians & libraries can get involved with citizen science
- Identify citizen science resources and funding opportunities





Accelerating Biomedical Discovery and Data-Powered Health

Search for



PubMed

Citations for biomedical
literature



MedlinePlus

Reliable, up-to-date health
information for you



Open-i

An experimental multimedia
search engine



TOXNET

Search databases on
hazardous chemicals



ClinicalTrials.gov

A database of clinical
studies, worldwide



BLAST

Basic Local Alignment
Search Tool

“The National Library of Medicine (NLM), on the campus of the National Institutes of Health in Bethesda, Maryland, has been a center of information innovation since its founding in 1836”.

[The National Library of Medicine](https://www.nlm.nih.gov/) (<https://www.nlm.nih.gov/>)

Regional Medical Libraries

Explore the pinpoints below and learn more about the NNLM Regional Medical Libraries and their respective territories.



[National Network of Libraries of Medicine](https://nnlm.gov/)

(<https://nnlm.gov/>)

What does NNLM do?

- in person and online trainings
- exhibit at conferences and health fairs
- provide funding
- and much more!

Join today!
<https://nnlm.gov/regions>



Testing chat:

- Are you a dog person, a cat person, or something else?

In the chat type:

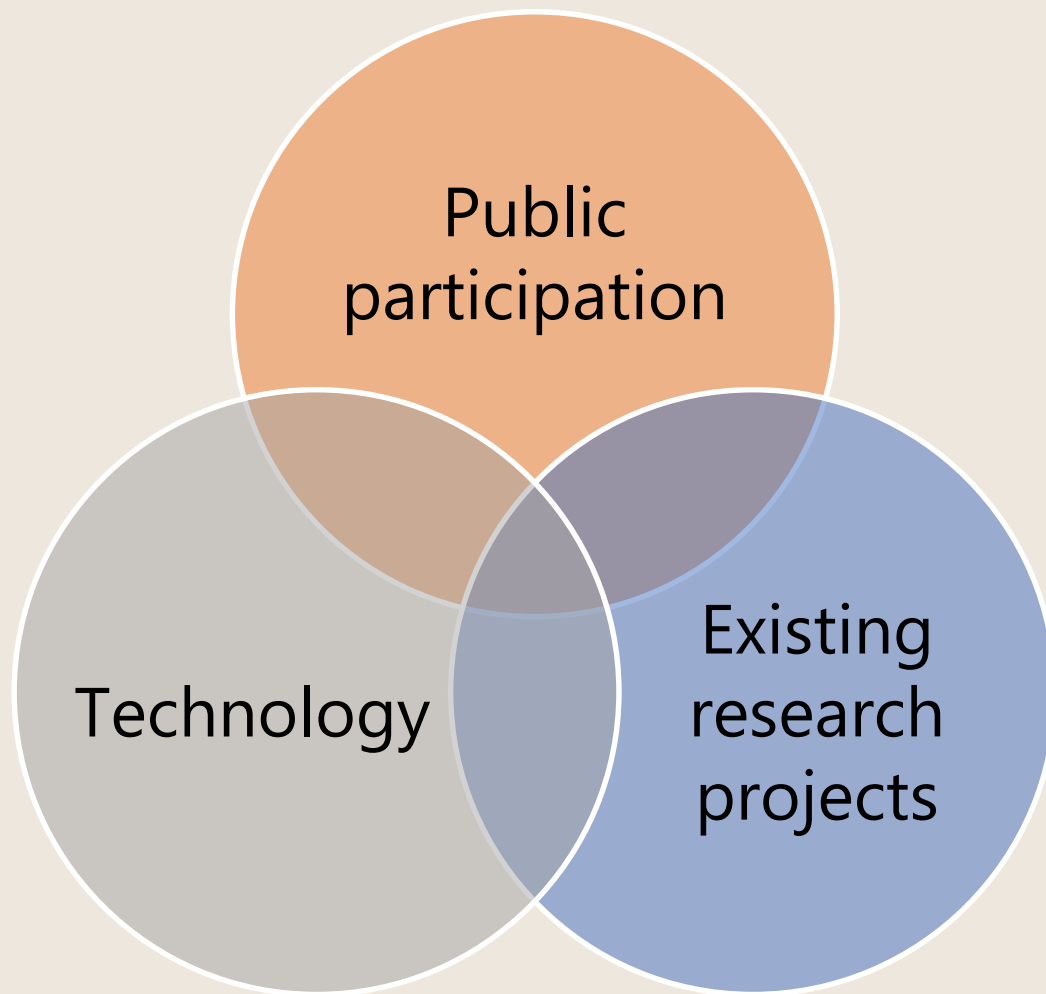
1 for dog

2 for cat

3 for something else (if you vote 3 let us know what "something else" is!)

Poll: in your opinion, what is citizen science?

Citizen science is at the intersection of:



Poll: in what disciplines can citizen science be found?

Poll: have you participated in citizen science before?

Ten Principles of Citizen Science:

from the European Citizen Science Association

New Knowledge

Research Approach

Genuine Science Outcome

Open Project Data

Everyone Benefits

Acknowledgment

Participate in multiple stages

Programs evaluated

Receive Feedback

Carefully considered

[The 10 Principles of Citizen Science](https://ecsa.citizen-science.net/sites/default/files/ecsa_ten_principles_of_citizen_science.pdf) (https://ecsa.citizen-science.net/sites/default/files/ecsa_ten_principles_of_citizen_science.pdf)

Citizen Science in the News

Zoological Projects

[Guardian article](https://www.theguardian.com/science/blog/2014/apr/24/junior-citizen-scientists-investigate-the-plight-of-the-bumblebee)

(<https://www.theguardian.com/science/blog/2014/apr/24/junior-citizen-scientists-investigate-the-plight-of-the-bumblebee>)

Zoology Notes & Theories

Junior citizen scientists investigate the plight of the bumblebee

The Big Bumblebee Discovery project aims to engage more than 100,000 children in mass participation experiments



▲ People across the UK are being invited to take on the role of researcher, observing and recording bumblebees as they visit lavender flowers. Photograph: Richard Becker/Alamy

Urban Design Projects

[Stanford Medicine blog](https://scopeblog.stanford.edu/2018/06/26/citizen-science-research-investigates-neighborhoods-effects-on-well-being/)
(<https://scopeblog.stanford.edu/2018/06/26/citizen-science-research-investigates-neighborhoods-effects-on-well-being/>)



Citizen science research investigates neighborhoods' effects on well-being

SCOPE
Published by Stanford Medicine

Jennifer Huber

June 26, 2018

Astronomy Projects

[BBC article](https://www.bbc.com/news/science-environment-42644531)

(<https://www.bbc.com/news/science-environment-42644531>)

Citizen science bags five-planet haul

By Paul Rincon

Science editor, BBC News website, Washington DC

🕒 12 January 2018



🔗 Share



A discovery by citizen scientists has led to the confirmation of a system of five planets orbiting a far-off star.

Environmental Projects

[KUER article](http://kuer.org/post/how-pokemon-helped-inspire-citizen-science-project-monitor-tiny-streams#stream/0) <http://kuer.org/post/how-pokemon-helped-inspire-citizen-science-project-monitor-tiny-streams#stream/0>

How Pokemon Helped Inspire A Citizen Science Project To Monitor Tiny Streams

By RAE ELLEN BICHELL • MAR 28, 2018

PROGRAM
Mountain West News Bureau

 Tweet  Share  Google+  Email



In the fall of 2017 (left), Stream Tracker volunteer John Hammond found this creek near Fort Collins, Colo., to be dry. A year later (right), it was flowing again.

KIRA PUNTENNEY-DESMOND / COLORADO STATE UNIVERSITY

Naturalist Projects

[Grand Canyon News article](https://www.grandcanyonnews.com/news/2018/jun/05/fourth-graders-join-kaibab-national-forests-citize/)
(<https://www.grandcanyonnews.com/news/2018/jun/05/fourth-graders-join-kaibab-national-forests-citize/>)

Fourth graders join Kaibab National Forest's Citizen Science Project



Students from Fredonia Elementary School attend a field trip on the North Kaibab Ranger District May 17 to help the forest's Citizen Science Project. The students were armed with Kindle Fire tablets to photograph and document a variety of plants and animals on the iNaturalist app. (Photo/Kaibab National Forest)

By Williams-Grand Canyon News

Originally Published: June 5, 2018 10:30 a.m.

Health Projects


[San Antonio Express News](https://www.expressnews.com/news/local/article/NASA-is-building-models-to-predict-mosquito-borne-13083164.php)

(<https://www.expressnews.com/news/local/article/NASA-is-building-models-to-predict-mosquito-borne-13083164.php>)

NASA is building models to predict mosquito-borne illnesses — and you can help

By Alex Stuckey | July 17, 2018





Finding Citizen Science Projects


SciStarter (<https://scistarter.com/>)

- Find projects to participate in/inspiration for program models
- Search by topic and/or location
- Read about project successes
- Contribute to Citizen Science Day (April 14)





★★★★★ (2) ?

 Bookmark

Join Project

☐ I have already joined this project

Related Projects



PressureNet



What Do Birds Eat?

Drug discovery from your soil

Presented By: University of Oklahoma

Goal: Natural Product Drug Discovery from soil fungi

Task: Send us soil from your backyard

Where: Drug discovery from your soil

Description: Creating a new medicine is a team effort involving scientist and medical professionals from a wide variety of fields. In 2010, researchers with the University of Oklahoma's Natural Products Discovery Group redefined the notion of what "team" meant when they launched their popular Citizen Science Soil Collection Program. Through this program, volunteers from across the United States have helped by donating soil samples from their own backyards, which OU investigators are using to obtain fungi that make special compounds known as natural products. Natural products are the source of many lifesaving drugs that are used today by doctors around the world.

[Read less](#)

How to Join: Joining the research process is amazingly simple: send us your dirt! Visit our website (<http://npdgcitizenscience.org>) and fill out the online form to request a free soil sample collection kit.

[Drug discovery from your soil](https://scistarter.com/project/1164-Drug-discovery-from-your-soil) (<https://scistarter.com/project/1164-Drug-discovery-from-your-soil>)

How to Join: Joining the research process is amazingly simple: send us your dirt! Visit our website (<http://npdgcitizenscience.org>) and fill out the online form to request a free soil sample collection kit.

Bonus a free coloring book for our young (6 and under) participants.

Website: <http://npdgcitizenscience.org>

Required Gear: Free soil sample collection kit provided by the project organizer. Participants must own or have permission to collect a sample from the land.

Ideal Age Group: Elementary school (6 - 10 years), Middle school (11 - 13 years), High school (14 - 17 years), College, Graduate students, Adults, Families

Spend the Time: outdoors

Type of Activity: At home

Media Mentions and Publications:

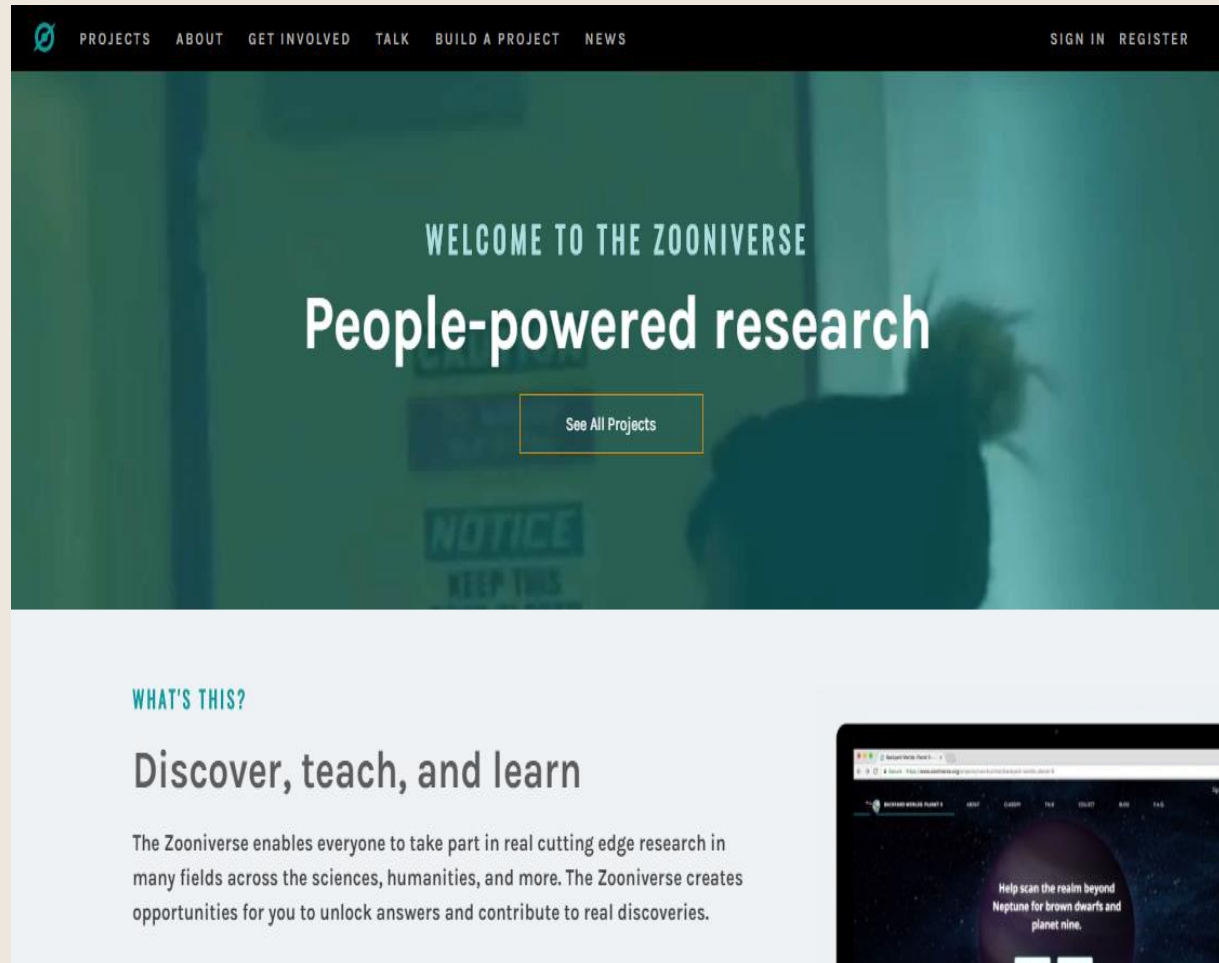
- Natural Products Discovery Group

Tags: cancer, dirt, drug, drug development, drug discovery, girl scouts, infection, natural products, soil

Project Updated: 05/23/2018

Zooniverse (<https://www.zooniverse.org/>)

- Find projects to participate in/inspiration for project models
- Search by discipline
- View publications based on citizen science projects



ZOONIVERSE

REAL SCIENCE ONLINE

Projects

Active

Paused

Finished



ALL
DISCIPLINES



ARTS



BIOLOGY



CLIMATE



HISTORY



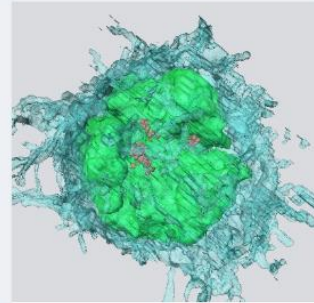
LANGUAGE



Most Recently Launched



Showing 1-20 of 89 projects found.



ETCH A CELL



SCIENCE GOSSIP



Where are my body organs? ✓

ABOUT

CLASSIFY

TALK

COLLECT

Can you determine the location of
the organs and structures within
the human body?

Learn more

Get started

[Where are my body organs?](https://www.zooniverse.org/projects/h-spier/where-are-my-body-organs)

(<https://www.zooniverse.org/projects/h-spier/where-are-my-body-organs>)

A stylized illustration of a desk setup. In the center is a white laptop with a grey screen displaying the text 'Libraries & Citizen Science!'. To the left of the laptop is a grey adjustable desk lamp and a white mug. To the right is a grey pot containing a cactus with several round segments and small spines. The background consists of orange and grey rounded rectangular shapes.

Libraries & Citizen Science!

The Library as a Citizen Science Hub

Resources



BE A CITIZEN SCIENTIST

- Related Online Resources »
- Recommended Websites »

Portland Public Library (Maine) Citizen Science Page
(<https://www.portlandlibrary.com/highlights/citizen-scientist/>)

Collections



Display by Aimee Stubbs from
<https://aimeestubbs85.wordpress.com/>

How else can libraries participate?

Clubs



We are participating in the Citizen Scientist program

"Bugs in Your Schoolyard"

This program is for students in grades 4-8.

See your site lead or more information

Citizen Science Day



<http://www.citizenscience.org/events/citizen-science-day/>

More ways for libraries to get involved!

Collaborations

- "Nature Days"
- "Nature exploration bags"



National Library of Medicine Resources for Citizen Science



National Library of Medicine

Environmental Health Student Portal

Connecting Middle School Students to Environmental Health Information

Home

Air Pollution

Chemicals

Climate Change

Water Pollution

Videos

Games

Experiments

For Teachers



Search

Go



Print this Page

What is Environmental Health ?

Environmental Health is the interrelationship between human health and the environment, either natural or manmade.

Learn More



Air Pollution



Chemicals



Climate Change



The water we use every day has to be treated so it's clean and safe.

[Environmental Health Student Portal](https://kidsenvirohealth.nlm.nih.gov/) (https://kidsenvirohealth.nlm.nih.gov/)

For Teachers



Air Pollution



Chemicals



Climate Change



Water Pollution

Indoor Air Pollution



Why Study Indoor Air Pollution (State of Delaware) - Six activities to help students become more aware of the health risks associated with indoor air pollution.

There is Something in the Air (Baylor College of Medicine) - PDF unit lesson to model the flow of pollutants through outdoor and indoor air.

Helping to Find a Solution to Air Pollution! (Pima County, Department of Environmental Quality) - PDF activity for students to write themselves a letter about the problem of air pollution and how they would help with the causes.

Air Quality (Tox Town - National Library of Medicine) - Introduces students to air quality and the impact of air pollution on human health. Students test air quality in several locations in and around the school.

Air Pollution and Illness (CK-12) - Provides reading, practice, and critical thinking, activities, and study guides on how indoor and outdoor air pollution affects human health.



Outdoor Air Pollution

ECybermission - Accept the Challenge (U.S. Army) - Education outreach program promoting the creation of

[EHSP Teacher Guide](https://kidsenvirohealth.nlm.nih.gov/generic/6/for-teachers) (<https://kidsenvirohealth.nlm.nih.gov/generic/6/for-teachers>)

Tox Town

ENVIRONMENTAL HEALTH CONCERNS AND TOXIC CHEMICALS WHERE YOU LIVE, WORK, AND PLAY



≡ Menu



[Tox Town](https://toxtown.nlm.nih.gov/) (<https://toxtown.nlm.nih.gov/>)

ToxTown Features:

- Key Concepts and Glossaries
- Community Action Tools
- Tools for Teachers
- Experiments and Projects





Your Guide to Understanding Genetic Conditions

Search

Health Conditions

Genes

Chromosomes & mtDNA

Resources

Help Me Understand Genetics

Genetics Home Reference provides consumer-friendly information about the effects of genetic variation on human health.



Health Conditions

More than 1,100 health conditions, diseases, and syndromes

[Browse A-Z](#)



Genes

More than 1,300 genes and the health effects of genetic changes

[Browse A-Z](#)



New & Updated

New

[7q11.23 duplication syndrome](#)

[Stüve-Wiedemann syndrome](#)

[fibrochondrogenesis](#)

[Past 12 Months](#)

Updated

[antiphospholipid syndrome](#)

[infantile-onset ascending hereditary spastic paralysis](#)

[Poland syndrome](#)

[spondyloepiphyseal dysplasia congenita](#)

[Past 12 Months](#)

Bulletins

[Genetics Home Reference](https://ghr.nlm.nih.gov/) (<https://ghr.nlm.nih.gov/>)



Your Guide to Understanding
Genetic Conditions

[Health Conditions](#)[Genes](#)[Chromosomes & mtDNA](#)[Resources](#)[Help Me Understand Genetics](#)

Help Me Understand Genetics

An introduction to fundamental topics related to human genetics, including illustrations and basic explanations of genetics concepts.

[Printable PDF \(6MB\)](#)[Open All](#)[Close All](#)

▼ Cells and DNA

[What is a cell?](#)[What is DNA?](#)[What is a gene?](#)[What is a chromosome?](#)[How many chromosomes do people have?](#)[What is noncoding DNA?](#)[Printable Chapter PDF \(1MB\)](#)

[GHR Help Me Understand Genetics Handbook](https://ghr.nlm.nih.gov/primer) (<https://ghr.nlm.nih.gov/primer>)

[TOXNET Home](#) > [ChemIDplus Lite](#)



SEARCH ChemIDplus

BROWSE ChemIDplus

ADVANCED SEARCH

(automatic) (automatic)

Search

Search for multiple terms by using this format: 50-00-0|50-01-1|50-02-2

About ChemIDplus



What is ChemIDplus?

Chemical database is a dictionary of over 400,000 chemicals (names, synonyms, and structures). ChemIDplus includes links to NLM and other databases and resources, including links to federal, state and international agencies. [ChemIDplus Lite](#) is designed for simple searching on name or registry. [ChemIDplus Advanced](#) helps users draw their own structures and perform similarity and substructure searches.

Updates: ChemIDplus records are updated daily.

Did you know



How do I lease/license the TOXNET databases?

The following TOXNET databases are available for lease: ChemIDplus, DIRLINE, CCRIS, GENE-TOX, HSDB, and TOXLINE.

For further information visit [Leasing Data](#) from the National Library of Medicine.

[More FAQs](#)

Support

Resources

[Help](#)
[Fact Sheet](#)
[Sample Record](#)
[TOXNET FAQ](#)

Contact Us

Email: tehip@tehl.nlm.nih.gov
 Telephone: (301) 496-1131
 Fax: (301) 480-3537

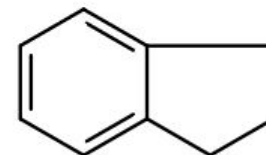
Environmental Health & Toxicology

Resources on environmental health and toxicology

[Visit Site](#)

Structure

[Edit](#)



Powered by [ChemAxon Marvin](#)

Use: [Marvin for JavaScript](#)

[Import MOL](#)

Structure Search Options

- ☐ Substructure Search
- ☒ Similarity Search %
- ☐ Exact (parent only)
- ☐ Flex (parent, salts, mixture)
- ☐ Flexplus (parent, all variations)

Structure data is available for 318,533 records.

[ChemIDplus](https://chem.nlm.nih.gov/chemidplus/) (<https://chem.nlm.nih.gov/chemidplus/>)



Household Products Database

Health & Safety Information on Household Products

National Institutes of Health
National Library of Medicine
Specialized Information Services



Home

Products

Manufacturers

Ingredients

Health Effects

Quick Search

Product, Manufacturer etc...

Advanced Search ▶

Browse by Category

Auto Products

Inside the Home

Pesticides

Landscape/Yard

Personal Care

Home Maintenance

Arts & Crafts

Pet Care

Home Office

Commercial / Institutional

Browse A-Z

Product Names

Types of Products

Manufacturers

Ingredients

Support

What's under your kitchen sink, in your garage, in your bathroom, and on the shelves in your laundry room?
Learn more about what's in these products, about potential health effects, and about safety and handling.



Auto Products

Brake Fluid, De-icer, Lubricant,
Sealant, and more...



Inside the Home

Air Freshener, Bleach, Cleaners,
Toilet Bowl Cleaner, and more...



Pesticides

Animal Repellent, Fungicide,
Herbicide, Insecticide, and more...



Landscape/Yard

Fertilizer, Lawn Care, Swimming
Pool Products, and more...



Personal Care

Antiperspirant, Hair Spray, Makeup,
Shampoo, Soap and more...



Home Maintenance

Caulk, Grout, Insulation, Paint,
Putty, Stain, and more...



Arts & Crafts

Adhesive, Glaze, Glue, Primer,
Varnish, and more...



Pet Care

Flea & Tick Control, Litter,
Stain/Odor Remover, and more...



Home Office

Ink, Toner, Correction Fluid,
Electronics Cleaners, Pens and
more...

[Household Products Database](https://householdproducts.nlm.nih.gov/) (https://householdproducts.nlm.nih.gov/)

Warnings: Hazard Statements

Warning. Causes eye irritation.

Precautionary Statements

Prevention

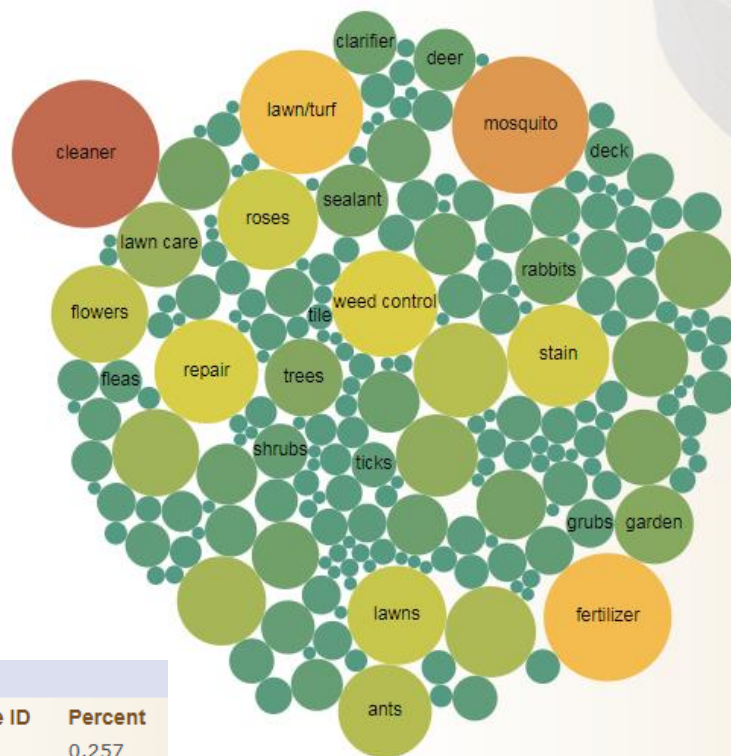
Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Wash hands thoroughly after handling.

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Ingredients from (M)SDS/Label

| Chemical | CAS No / Unique ID | Percent |
|--|--------------------|---------|
| DMA salt of MCPA | 002039-46-5 | 0.257 |
| DMA salt of Dicamba (3,6-dichloro-o-anisic acid) | 002300-66-5 | 0.029 |
| Benzisothiazolinone | 002634-33-5 | 0-0.1 |
| Quinclorac | 084087-01-4 | 0.118 |
| Sulfentrazone | 122836-35-5 | 0.015 |



Funding Opportunities

- [NNLM Funding](https://nnlm.gov/funding) (https://nnlm.gov/funding)
- [Foundation Center](http://libraries.foundationcenter.org/) (http://libraries.foundationcenter.org/)
- Your state library
- Federal agencies:
 - Environmental Protection Agency
 - National Science Foundation
 - US Forest Service



Additional Programming Ideas

[The Show Me Librarian](https://showmelibrarian.blogspot.com/p/all-things-steam.html)

(<https://showmelibrarian.blogspot.com/p/all-things-steam.html>)

- Repository for library STEAM programs and resources

[STAR Net](https://www.starnetlibraries.org/) (<https://www.starnetlibraries.org/>)

- Website with ideas, email newsletter

Potential Partnerships

Museums

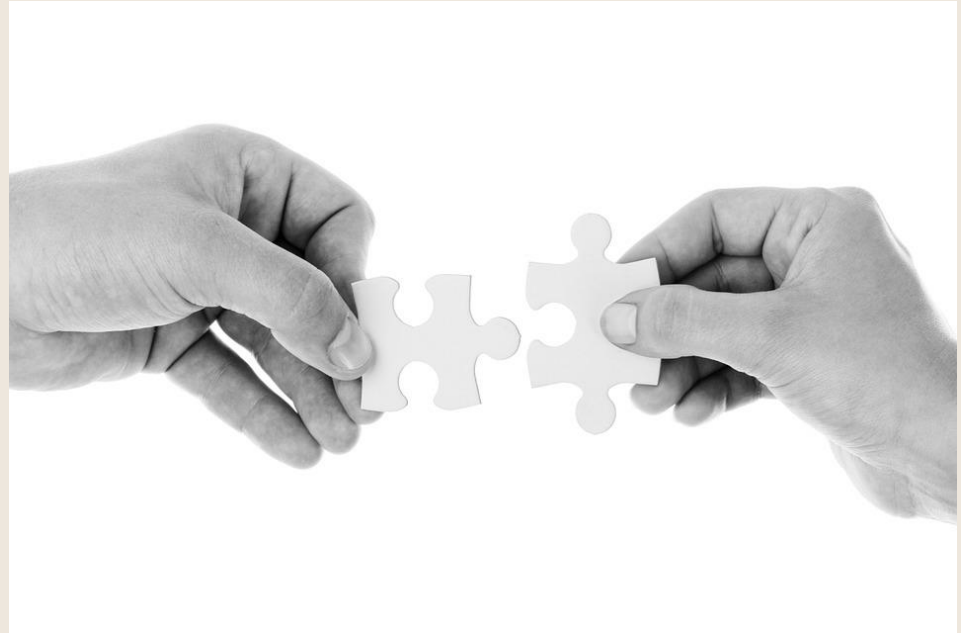
Science centers

Local parks

Academic institutions

After school programs

Camps



Collection Ideas - titles to get started:

- Citizen Science: Public Participation in Environmental Research / Janis L. Dickinson and Rick Bonney
- The Incidental Steward / Akiko Busch
- Citizen Scientist: Searching for Heroes and Hope in an Age of Extinction / Mary Ellen Hannibal
- Citizen Science: How Ordinary People are Changing the Face of Discovery / Caren B. Cooper
- Citizen Science Guide for Families: Taking Part in Real Science / Greg Landgraf
- Exploring Environmental Science with Children and Teens / Eileen G. Harrington
- Citizen Science: Theory and Practice (journal)

Additional places to find information

- [Citizen Science Association](http://www.citizenscience.org/) (<http://www.citizenscience.org/>)
- [European Citizen Science Association](https://ecsa.citizen-science.net/) (<https://ecsa.citizen-science.net/>)
- [CitSci.org](http://citsci.org) (citsci.org)
- [Citizen Science discussion list](http://www.citizenscience.org/elist/) (<http://www.citizenscience.org/elist/>)
- [Citizen Science Conference](http://www.citizenscience.org/association/conferences/) (<http://www.citizenscience.org/association/conferences/>)

Save the date reminder:

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- April 22, 2019 at 2 pm ET PubMed teaching panel

Thank you!

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